National Institute of Environmental Health Sciences

A review of frameworks for developing environmental health indicators for climate change and health

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Abstract:

The role climate change may play in altering human health, particularly in the emergence and spread of diseases, is an evolving area of research. It is important to understand this relationship because it will compound the already significant burden of diseases on national economies and public health. Authorities need to be able to assess, anticipate, and monitor human health vulnerability to climate change, in order to plan for, or implement action to avoid these eventualities. Environmental health indicators (EHIs) provide a tool to assess, monitor, and quantify human health vulnerability, to aid in the design and targeting of interventions, and measure the effectiveness of climate change adaptation and mitigation activities. Our aim was to identify the most suitable framework for developing EHIs to measure and monitor the impacts of climate change on human health and inform the development of interventions. Using published literature we reviewed the attributes of 11 frameworks. We identified the Driving force-Pressure-State-Exposure-Effect-Action (DPSEEA) framework as the most suitable one for developing EHIs for climate change and health. We propose the use of EHIs as a valuable tool to assess, quantify, and monitor human health vulnerability, design and target interventions, and measure the effectiveness of climate change adaptation and mitigation activities. In this paper, we lay the groundwork for the future development of EHIs as a multidisciplinary approach to link existing environmental and epidemiological data and networks. Analysis of such data will contribute to an enhanced understanding of the relationship between climate change and human health.

Source: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3155333

Resource Description

Climate Scenario :

specification of climate scenario (set of assumptions about future states related to climate)

Special Report on Emissions Scenarios (SRES)

Special Report on Emissions Scenarios (SRES) Scenario: SRES A1, SRES A2, SRES B1, SRES B2

Communication:

resource focus on research or methods on how to communicate or frame issues on climate change; surveys of attitudes, knowledge, beliefs about climate change

A focus of content

Communication Audience:

audience to whom the resource is directed

Policymaker

Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution, Ecosystem Changes, Extreme Weather Event, Food/Water Quality, Precipitation, Temperature

Air Pollution: Interaction with Temperature

Extreme Weather Event: Drought, Hurricanes/Cyclones

Temperature: Extreme Cold, Extreme Heat, Fluctuations

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

Global or Unspecified

Health Impact:

specification of health effect or disease related to climate change exposure

Infectious Disease, Mental Health/Stress, Morbidity/Mortality, Respiratory Effect, Other Health Impact

Infectious Disease: Foodborne/Waterborne Disease, General Infectious Disease, Vectorborne Disease

Foodborne/Waterborne Disease: General Foodborne/Waterborne Disease

Vectorborne Disease: General Vectorborne

Other Health Impact: Well-being

Intervention:

strategy to prepare for or reduce the impact of climate change on health

A focus of content

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation, Mitigation

Model/Methodology:

type of model used or methodology development is a focus of resource

Exposure Change Prediction

Resource Type:

format or standard characteristic of resource

Policy/Opinion, Research Article

Timescale:

time period studied

Long-Term (>50 years)

Vulnerability/Impact Assessment:

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content